Its price varies between 12 and 15 francs per hundred kilograms.

6. Catechu (Sisiet).

Catechu is produced from a decoction of the bark of two varieties of trees, the catechu acacia and the leafy butée.

This product, which is used in making the national masticatory together with betel, betel nuts and lime, is consumed, in the large centers of Upper Laos, in the form of a dry residue obtained from a decoction of the bark. Generally, however, it is the bark itself which is consumed after it has been broken up into small pieces.

Natural sisiet takes the form of shreds of bark about a cubit (.45 meter) long by four centimeters wide and one centimeter thick. The shreds are tied together in packs of twenty-five or fifty, depending on the region.

The whole production is consumed locally. The natives [334] go into the forest at points where suitable trees are to be found, bundle up the pieces and load them on great rafts which go down from Pak-Lay and Vien-Tiane to Bassac and even to Khong.

At Pak-Lay sisiet is worth only 7 francs and 50 centimes per hundred pieces, but it naturally costs more the further away one goes from the centers of production.

7. Curcuma (Khi-Mine).

This plant, of the Zingiberaceae family, has a rhizome which contains an orange-yellow coloring matter used for dyeing silk and cotton.

Sometimes the inhabitants (chiefly the women and children) rub their whole body with curcuma scrapings after a bath. The application of curcuma to the wet skin, which acquires a light yellow color, is said by the natives to ward off mosquitoes and keep the skin fresh.

Up to the present time this product has not formed the basis of any foreign trade. It is sold in small amounts on the markets of Laos.

8. Ginger.

The ginger which is called "Mak-Khing" in Laotian is the Zingiber officinale or gray ginger. Used as a condiment by the entire population, this product does not enter into trade. Its price varies between 12 francs and fifty centimes and 16 francs and fifty centimes per hundred kilograms.

9. Roucou.

The roucou, or fruit of the Roucouyer Bixia, is called "Kane-Mak-Soum-Phon" in Laotian. Literally, this means Seed of an acidulous mountain fruit. It is used to make red and orange dyes

"Pa-Niang," formed of slices from a large fish which have been smoked. 226

"Pa-Heng," or a small dried fish. 262

"Pa-Khem" corresponds fairly closely to our salted and dried fish of the sardine type known as Nantes, which are left in salt for only a few days.

Finally, "Pa-Dek" is the form in which most of the large varieties of fish are preserved, and is an almost indispensable part of the native food supply. To prepare Pa-Dek the meat is cut into small pieces and ground in a mortar with salt and pepper so as to produce a kind of paste which is then put in jars with salt. The resulting brine helps to preserve the product (1). 263

(1) The price of Pa-Dek varies between 18 and 25 francs per hundred kilograms. This is the "Mam" of the Annamites.

The price of fish is subject to fluctuations, depending on the scarcity of it. The large fish of which we have just been speaking sell at prices between one and forty francs, depending on their weight and their abundance on the market. 226 435

Eels, shrimp of the prawn type and crabs are also found in the ponds and rivers of Laos during the rainy season, and in the water-courses there are various edible shellfish [353] such as the river mussel and small winkle. The ponds and swamps shelter several varieties of frogs, some of which reach an enormous size. All of them are edible, and are caught with a red ribbon on the end of a line fastened to a long bamboo pole. 226 [227]

II

PRESENT-DAY CROPS

Together with an enumeration of the crops grown in Laos we should like to be able to give the area which each occupies and the cultivable surfaces with the nature of the soil and the type of crops which would be suited to them, but as the Superior Resident states in his report for 1899: 241 311

"We have been in the colony for too short a time to have been able to set up a cadastral registry service. In view of the large area of the territory (267,000 square kilometers), the small and sparse population which inhabits it (2.7 inhabitants per square kilometer in

incorporate into the teas which they send abroad. But they appeal to the Chinese and other Orientals, and part of the crop is even set aside and sent as tribute to the court of the Emperor in Peking. 245 [648] [276]

The Shans, the Lus and the Youns use a masticatory called "Mieng" which is composed solely of tea leaves which have been preserved in brine.

PIMENTOS. Since pimento is a much sought-after condiment, and one which is even indispensable to the people of Laos, as to those of neighboring countries, the cultivation of this product is quite widespread. [244 263]

This pimento is of the large, red variety. It is prepared by [378] drying and smoking it, thereby guaranteeing that it will keep. Its name in Laotian is "Mak-Phik." The price of dry pimento varies from 25 to 37 francs per hundred kilograms.

FARMING IMPLEMENTS AND TOOLS USED IN LAOS. We shall conclude this rapid listing of the chief crops grown in Laos by giving a list of the farming implements used in the country. These latter are just as primitive and just as rudimentary as the farming methods, and the Laotians do not make any more effort to improve the ones than to improve the others. 412 241

The plow (Thai). The plow is extremely simple and is the primitive swing-plow formed of a single piece of bent wood. A share or "Mak-Sob-Thai" is fitted to its front end. Sometimes the share is even supplanted by cutting the stick of wood diagonally and hardening it in a fire. Drawn by a buffalo, this tiny plow cannot break the soil to any great depth, and so is used in ricefields only when the soil has been sufficiently softened by the annual inundations.

The harrow (Khat). The harrow is a sort of wooden rake .9 meter long, the teeth of which are made of ironwood or any other very hard wood, "Mai-Lek" or "Mai-Khen-Hine." This rake forms one of the sides of a triangle, the peak of which is harnessed to a buffalo.

The roller (Ham). The roller is the trunk of some hardwood tree, "Mai-Khen-Hine" for example. It has pins over which two shafts fit, leaving space to harness a buffalo.

The sickle. There are sickles of several sizes, which are called either "Kio" or "Lek Kio" without distinction. Sickles are used to cut grasses and rice.

Sugar cane. The production of sugar cane, which is still not very significant in Laos, deserves to be encouraged. Later on when this crop had been developed, the Laotians might be trained in the methods of the first stage of refinement. They would then be able to produce gray muscovado and sugar candy, which are easily exportable.

Southern Laos is the part of our possession which would lend itself [386] best to the extension of this crop. Although of secondary importance, it is nonetheless deserving of attention.

Benzoin trees. Increasing the number of trees which are producers of this precious resin is again a task for the administration. After a serious study of the conditions of growth of the plant in Laos, of its habitat and of the nature of the terrain best suited to it, it would be possible to set up seed gardens designed to supply young plants either to the natives or to Europeans who settled in the country and were interested in this crop. It yields a rich product, which brings a high price on the market. Benzoin is, in fact, widely used in perfumes and in the manufacture of varnishes.

Lac trees. All who are acquainted with Laos are unanimous in agreeing that increasing the production of sticklac is one of the main factors in increasing the country's wealth. What, indeed, could be more simple, thanks to the easy and rapid multiplication of the "Kok-Toua-He," the tree which grows almost without care and lends itself so well to the establishment of colonies of coccus lacca, the producers of a superior quality of gum lac?

Cardamom. It would seem that experiments with growing true cardamom, as it is grown in Cambodia in the province of Pursat, might be attempted in Laos. The natives would have everything to gain from giving up the cultivation of wild cardamom for that of true cardamom, since the latter brings from five to ten times more than the former on the market of Pnom-Penh.

Until such time as this precious seed is introduced into Laos, it will be well to extend and encourage the cultivation of the present variety of cardamom. All those who have engaged in the production and commerce of this seed (1)--the mountainfolk who grow it, the

(1) It is much sought-after by the Chinese, who use it as a condiment as well as in pharmaceutical preparations.

249
263 Chinese and Laotian middlemen and even the few European merchants--
438 have found that it brings in rewarding profits. Indeed, by exporting this product the latter are assured of an almost certain gain of 20 to 30 percent.

248
439 [387] Ramie. There is also much to be gained from increasing the production of ramie or Chinese nettle. It is assured of an outlet in Cambodia, where it sells for as much as 80 francs per hundred kilograms.

219
185 Cinnamon. The extension of the plantations and gardens of cinnamon trees already in existence in the province of Vien-Tiane deserves serious encouragement. The bark of these trees is a valuable product which is much sought-after in China and in Europe.

276
656 Opium poppies. The Government of Indo-China, which is both the preparer and seller of chandoo or opium for smoking, is the party which would gain most from obtaining the raw drug on French territory. It is, indeed, still dependent on British India for this product, and can acquire it only on extremely disadvantageous terms.

Since much time must still pass, however, before the Meos and the Yaos give up their age-old methods, it would be essential for the intensive cultivation of the opium poppy to be undertaken by Europeans on behalf of the administration. This would be possible if there were a guaranteed labor supply in the form of Chinese coolies, who would be enlisted primarily for the greater part of the work, and of native specialists who would deal only with scarification of the capsules, harvesting the opium and the first stage of its preparation.

These delicate operations are the ones which the Meos and the Yaos like best, but they dislike plowing, fertilizing, weeding and irrigation, all of which tasks are indispensable for obtaining a high yield of capsules and consequently of the raw drug. It would therefore be best to entrust this heavy work to foreign coolies, and it is probable that after a certain time they too would be capable of extracting the opium. Impelled by their example, the natives would doubtless then be seen to break with their prejudices and devote themselves also to intensive cultivation so as to reap its full benefits.

The role of the administration would then be at an end, and it would gradually diminish its intervention as free cultivation of the poppies increased.

[435 Raw opium which is produced locally or which comes from [388] neighboring countries is worth 22 francs, 50 centimes to 32 francs, 25 centimes per kilogram, depending on quality, in northern Laos.